

## **CHAPTER 3: METHODS**

### **INITIAL SITE RECORDING**

In 1990, UDCAR archaeologist, Glen Mellin, identified Middleford Mills as an archaeological site and registered it with the trinomial designation, 7S-E-150. Mellin also recorded a prehistoric site, 7S-E-146, near Bridge 238, on the basis of a single projectile point found years previously by Sam Mellin. In 1991, a study commissioned by DelDOT determined that the structural components of Bridge 238 were not eligible for the National Register of Historic Places (P.A.C. Spero and Co. 1991). In their report, DelDOT's consultant concluded that timber bridges such as Bridge 238 were common, and that many of the features from the original construction in 1936 had been replaced.

### **ARCHIVAL RESEARCH**

The purpose of the archival and background research for this project was twofold. The first goal was to produce a site-specific history of the Middleford Mills Archaeological District, including information about landowners, residents, structures, and activities associated with the project area from the time the property was first settled until the present. The second goal was to produce a historic context for mills and mill complexes in Delaware and the Mid-Atlantic region, so that the Middleford Mills could be compared to similar resources in the surrounding area.

The bulk of the research for the site-specific history of the Middleford Mills took place at the Delaware Public Archives in Dover. Here, Parsons researchers reviewed deeds; wills; probate records; real estate assessment records (to 1916); warrants and surveys; Chancery Court, Orphans Court, Superior Court, and Court of Common Pleas records and cases; insurance company records, industrial censuses, and various secondary source materials. Additional 20th-century deeds and real estate assessments not available at the archives were found at the Sussex County Courthouse in Georgetown. The Delaware State Historic Preservation Office in Dover provided archaeological and historical site files, historic maps, and other secondary source materials. At the Delaware Department of Transportation in Dover, researchers reviewed bridge construction plans and mill-related archaeological and historical reports. Historic milling source materials were available at the Library of Congress in Washington, D.C. Parsons researchers conducted telephone and email inquiries with personnel at the Hagley Museum in Wilmington and the Seaford Historical Society in Seaford.

### **SURVEY AND EVALUATION**

In the initial phase of fieldwork, conducted in June of 1998, Parsons excavated a total of 39 shovel tests along two transects, one on each side of the existing road. The shovel tests on each transect were spaced approximately 15 meters apart. These tests did not identify large concentrations of artifacts, but showed that more than 1 meter of fill was present under the bridge where it crossed Gravelly Run, or "Forge Run," as the

stream is referred to on some historic maps. Pedestrian survey in the bridge vicinity located a variety of furnace and mill related features, including slag and iron-ore piles, and various timbers in the water.

Subsequently, Parsons excavated five 1-m<sup>2</sup> units within the area of potential effects (APE), in order to expose and identify structural features that may have been related to the historic mill complex. Two units were excavated northeast of the bridge in the vicinity of timbers found near STP J4. All soil from these units was screened through ¼-inch hardware mesh cloth, and all artifacts bagged with provenience information. The units were drawn in plan and profile views.

Limited excavation was also conducted in the water in an effort to explore vertical timbers, or sheet piles, found beneath and south of the bridge. A 1-x-2 m unit was placed beneath the bridge over sheet pilings noted in the stream channel, while two 1-m<sup>2</sup> units were excavated in association with a line of sheet pilings south of the bridge, one unit near each bank where the pilings approached the shoreline. Stratigraphic information was limited due to problems with stream current in the channel or silt build-up, resulting in low visibility, in the slackwater near the shoreline south of the bridge. Excavated deposits were wet screened through ¼-inch mesh hardware cloth, and artifacts were bagged with available provenience information. Plan and profile data were recorded with measured sketches.

## **MAPPING**

As noted earlier, Bridge 238 lies near the southeastern edge of the Middleford Mills complex. In order to properly assess whether features in the project APE might contribute to the eligibility of the complex as a National Register archaeological district, Parsons prepared a scaled map of the area using a Global Positioning Satellite (GPS) system (Figure 38). This provided accurate locational data for known mill features on the landscape, and provided additional geographic context for the archaeological elements in the project area. The GPS data were incorporated into a Geographic Information System (GIS) database, that facilitated watershed analysis upstream from the complex and reconstruction of the mill pond at various periods in the past.

## **MITIGATION AND ARCHAEOLOGICAL DATA RECOVERY**

In considering possible fieldwork alternatives following the 1998 survey, it was decided that testing in the roadway or alongside the road would likely yield little data. The survey had indicated that the fill used to build up the current road surface was too deep for efficient excavation by typical archaeological methods, while those resources that had been positively identified lay in the water below the bridge span. The best approach to further investigation was to allow the bridge replacement contractor to remove the existing bridge, as per the construction contract. The excavation of road fill



Label	Description
Q	Wharf
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H	Wood Features (tracks)
B	Race
E	Wood Feature (Water control)
D	Wood Feature (Water control)
N	Site 7S-E-19
I	Slag Pile
I	Slag Pile
P	Wood Foundation (gates?)
O	Wood Foundation (gates?)
A	18th-century dam
B	Race
C	Iron Ore Quarry
F	Bridge 238
G	Iron Ore Quarry
J	Middle Gates
B	Race
L	Sawmill
K	Gristmill
M	Slag Pile, 18th-century Forge Site?



400 0 400 Feet

Figure 38: Middleford Mills  
Archaeological District

would be monitored by an archaeologist and halted when early deposits below the fill were encountered. In addition, the contractor would erect a cofferdam around the site, also as per the construction contract, to provide a dry environment for construction of the replacement bridge. This area would include the locations in which mill-related remains had been identified in the stream channel, and where more such remains were anticipated. At this point, a break in construction would be scheduled to allow the remaining archaeological work to be completed. The work was thus scheduled and conducted in July 1999.

The cofferdam that was installed measured approximately 36 x 70 feet. The metal sheeting consisted of interlocking, corrugated iron pilings that were driven an average 20 feet into the ground by a crane and vibrator. The stream was diverted through a 48-inch diameter metal culvert (Figure 39), supported by chains suspended from 12-inch steel beams driven vertically into the streambed on 5-foot centers. Suspension of the diversion culvert allowed archaeological excavation near and beneath the stream channel.

Archaeological work began with monitoring of excavation of the 1936 bridge fill. No articulated mill-related remains were found in the bridge fill above the high water mark during removal of the existing bridge and supports.

With the cofferdam in place and pumped dry, archaeological excavation proceeded. The remaining fill and recent stream deposits were excavated using a small backhoe lowered into the cofferdam. Because of the horizontal extent of the site, individual hand-excavated units were not practical, but mill-related features were exposed by hand. No concentrated deposits of historical artifacts were identified during the excavations. Screening of sediments was not considered necessary given the absence of artifacts other than 20th-century debris washed in by the stream. Thus, all of the archaeological information of relevance to evaluating the resource consisted of architectural remains. Scattered artifacts were recovered during feature excavation, and as a control, samples of backdirt were carefully trowel-sorted at ground level, above the cofferdam walls.

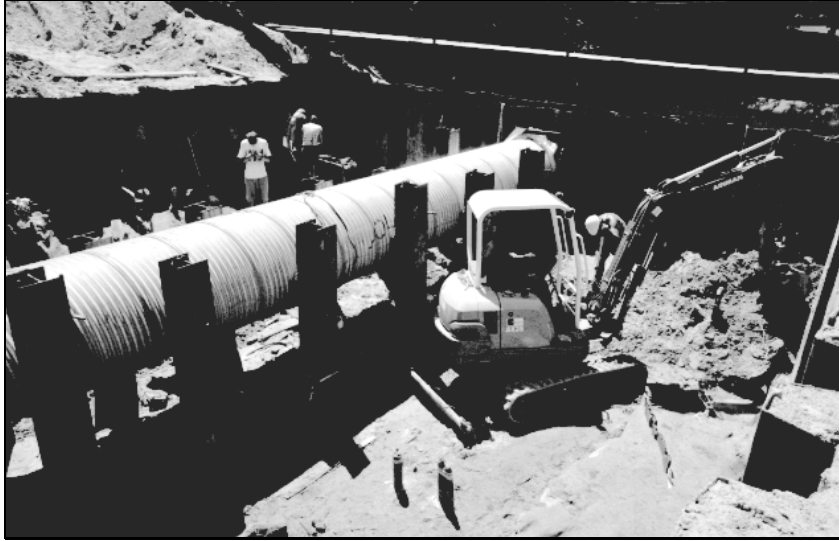


Figure 39: Mini Excavator in the Cofferdam.